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Round Table

THE STUDY OF MAN AND THE STATE OF THE WORLD

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An NBC Radio Discussion by DARYLL FORDE
ALFRED KROEBER *and* ROBERT REDFIELD

Including

Selected Excerpts from

THE STUDY OF MAN

By RALPH LINTON

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The Study of Man and the State of the World

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MR. REDFIELD: We are going to talk about anthropology. We are going to say something about what kind of science it is and something as to the kinds of things which it tries to find out about man in society.

My two colleagues around this table and I are among the eighty or more anthropologists from, I think, sixteen or seventeen different countries who are here in New York attending an international conference on anthropology under the auspices of the Wenner-Gren Foundation for Anthropological Research. All last week and next the varied and interesting problems of man's nature and origin are under consideration at this conference. The occasion is a sort of coming-of-age of anthropology among the established sciences.

If this science of man has something to say about what goes on in the world today, this might be a time to say it. Kroeber, I turn to you. You are the president of the current conference; and much of the development of anthropology has taken place in your lifetime. Tell us something about what anthropology was when you first became an anthropologist and what it has become now.

MR. KROEBER: Technically, anthropology was born ninety-three years ago with the publication of Darwin's *On the Origin of Species,* which let loose a flood of books on the evolution of man and of human culture. As an organized science it was born in this country, I think, in 1899, when the American Anthropological Association was organized. This organization still represents the profession in America. There were alive at that time some of the great historic figures like Tylor, who was an old man, and Boas and Frazer, who were in their prime, and there were all together about sixty anthropologists in the country.

MR. REDFIELD: Forde, you have a large share in regard to anthropology in British colonial affairs, do you not?

MR. FORDE: Yes, it is true that the relation of anthropology to colonial studies in Britain is very close and the obvious result of the fact that we

have peoples with whom we have very close relations administratively and economically of very different culture, of very different types of society from those at home.

We ought to find time on this broadcast to say something about that, but, first of all, I would like to get in a word about what Kroeber said about the career of anthropology, because a lot of the basic ideas concerning the diversity of human groups in terms both of physical appearance and of their culture go way back beyond the evolution discoveries and controversy of the nineteenth century. The latter crystallized it, but, of course, a great deal of the material with which the late-nineteenth-century anthropologists worked had been collected by explorers and discoverers long before. It is perhaps worth mentioning that much of that exploration and much of the early anthropological theories were based upon work in the American continent.

MR. REDFIELD: That interests me. When you say "exploration," I wonder what kind of exploration you have in mind—of course, most obviously, going to distant places and studying odd and unfamiliar people. My own career, as you know, has been with people fairly near at hand, Mexicans—and not so primitive either, rather peasant types—but I think that Kroeber might tell us a little bit more about the expanding interests of anthropology. We would not like our hearers to think that anthropologists are concerned only with the exotic and the very faraway.

MR. KROEBER: The early anthropologists leaned very strongly that way. They were people who were interested in the exotic and the remote and the faraway in quality as well as in space. They were interested in the origin of man—in fossil man, in the missing link. They were interested in the various races and their peculiarities—the races which have slant eyes and those which have peppercorn hair and those which have hollow backs and other peculiarities. They were interested in flint implements which came out of the ground, especially the flint implements which were associated with the bones of mammoths and extinct animals and which were therefore very pre-antediluvian, they used to call it—of geological antiquity. They were interested in little-known and faraway primitive peoples; and, if their customs were extraordinary and unusual, all the better. That gives an idea of what this original profession of perhaps sixty members, in the United States at least, was interested in. Much of that interest has continued.

MR. REDFIELD: Now we have how many? Six hundred anthropologists?

MR. KROEBER: About six hundred, not counting students (some of whom are far advanced), a respectable and sometimes important group of participating amateurs, and a small, quite small, fringe of cranks.

MR. REDFIELD: We find some of them studying city people; and there are anthropologists studying religious movements in the "back-of-the-yards" area of my own city, Chicago. How about England, Forde? Do they also study the modern community there?

MR. FORDE: Modern community studies on an anthropological basis, that is to say, where the observer goes and lives among the people concerned as opposed to taking public statistics and analyzing them numerically (that is, taking published information), where he goes out and gets his own material—what we anthropologists call "field work"—that is just beginning to be done in Britain itself; but a great mass of the work is being done in the dependent territories for which British people are responsible.

MR. KROEBER: We have community studies, and there is a particular fitness, one might say, for the anthropologists of today to study a civilized community, because it involves face-to-face contact with the people of the community, and that is what he or his predecessors were trained in with primitive people. But, in addition to that, all sorts of other new lines of activity have come up, such as the study of the national character, the study of acculturation—the whole relation of culture and personality.

MR. REDFIELD: There are great new areas of exploration. It makes us sound rather important and reminds me of the very gratifying but perhaps a little embarrassing remarks that Mr. Wenner-Gren made, you remember, Forde and Kroeber, when he opened our conference here in New York last week. He said that "anthropology is perhaps the most fundamental of sciences." That is quite a claim. And then he went on to say that it is a science which might give a new meaning to life and be instrumental in preventing humanity from committing suicide.

I suppose that we merely should be pleased that our host spoke so well of us. We do not have to take his compliments as literally true, but it at least makes me contemplate the desirability of looking at our

contribution to life. If anthropology is different from other sciences, if it has a part to play which is its own, I think that we ought to try to tell our hearers what we think of it.

I am reminded of some words of yours, Kroeber, which I would like to throw back at you and ask you whether you still accept them. You wrote at the end of one of your books as follows: "To see and appraise humanity and its works and men and their deeds; to see these free from the distortions of ethnocentricity, with full acceptance of all attainable objectivity whether painful or pleasant; to contribute to such an attitude is perhaps the largest contribution of anthropology."

That is what you wrote.

MR. KROEBER: I would stand by that. And I would also accept Mr. Wenner-Gren's appraisal, allowing for a bit of compliment which he paid us and also with the reservation as to whether we are really seriously rushing toward suicide as a race.

I do think that the recognition of ethnocentricity and the shearing-away from it and the overcoming of it is one of the main results which anthropology has achieved. We take in more territory than most sciences—there is no question about that. We are not so numerous as the scientists in many other branches, and perhaps therefore our work does lack here and there the depth which it ought to have; but the breadth of view, the perspective, does lead to treating all peoples and their cultures as common material for inquiry and understanding them better. That in itself seems to bring with it a tendency toward toleration and humaneness.

MR. FORDE: There is a point which I would like to bring in with regard to what Mr. Wenner-Gren said. From a practical point of view we probably have more at stake in preserving our civilization today than peoples had in the past. By that I mean that the advanced technology with which we live is something that, when it breaks down, can break down on a very big scale. The idea that humanity, that mankind, would ever disappear is quite out of the picture for us anthropologists, because we know how tough primitive man can be. So it is quite in the cards that our great-grandchildren might go back to being primitives if we do not understand ourselves anthropologically.

MR. REDFIELD: I certainly hope that anthropology can contribute to that work of trying to save us.

I would like to return to Kroeber's reference to the breadth of the anthropological point of view. I think that that might be spoken about at a little greater length. I wonder if both of you would say it in somewhat like the following terms: The anthropologist has the longest historical view of all the scholars and scientists who look at the history of man. That is, he goes back to the very beginnings, and before them, of the human race. And he also has the widest comparative view—that is, he knows the widest range of kinds of peoples, either by his direct field work or by what he reads. And then secondly he has a disposition in his way of considering these ways of life—these things he calls culture which characterize persisting human groups. He looks at them in their entirety. He likes to see them as an ongoing way to solve life's problems and make men human. In these two respects he has a certain degree of detachment which has given him a sort of popular title of the "man from Mars"; but this "man from Mars" is connected with rather immediate and local circumstances because he comes, as you said, Kroeber, face to face with his subject matter.

MR. KROEBER: I agree completely there. We do take the longest historical view; we carry man back to his veriest beginnings. There is no people, there is no custom of any people, which is too humble for us to throw onto the screen where we are trying to do our understanding. We have sometimes been accused of being a bit antiquarian in dragging everything into our net, and the harder an item is the better we like it. That may have been true at the beginning, but I think that we have overcome it. We try to see merely the great totality of what man has been and what man is and how man as a social animal functions today, and everything which may contribute to that, no matter how strange it may seem, is equally material. In other words, we are curious about man as man in the totality, and we are curious about all parts of what man has done and is doing.

MR. REDFIELD: Let us try to suggest how this characteristic anthropological viewpoint is brought to bear on particular situations or even practical problems. Forde, I come back again to your own experience in Africa. Certainly that is a part of the world where, as in many other parts, industrialization is rapidly developing.

MR. FORDE: I would like to put that on a slightly wider basis, if I might.

MR. REDFIELD: Yes.

MR. FORDE: The point being that the rapidity with which peoples' cultures are being changed; with which their social systems are being remade over the past generation and perspectively for the next two or three generations is quite unprecedented in the history of mankind. That is to say, the industrial revolution is more than a century old, but it has gathered momentum the whole time, and at the present stage we have gone beyond that of having primitive trading relations with outlying peoples where the merchants are in ports or on hulks at the mouths of tropical rivers or China ports. We have got to the stage at which modern industrial civilization is interpenetrating the culture of life of every people throughout the world. That is why I think that the layman is right in having some sense of crisis in this matter. People are going to be changed wholesale. Now, the British are notoriously unboastful, so you will realize that I am only recording a fact when I say that we have been up against this situation rather more than most other people because of our dependent territories throughout every continent.

MR. REDFIELD: Where does the role of anthropology in all that fall?

MR. FORDE: We have had in Britain the problem of understanding foreign cultures (and most western European peoples have had the same problem) for a century and, for the last twenty-five years, with an increasing sense of the difficulties. The administration of tropical territories, for example, and peoples therein was a comparatively simple matter when we started out to try to prevent local wars from developing and where we prevented missionaries from being eaten by cannibals. But, now that these tropical territories are being transformed, we as scientists, the majority of us, consider that the knowledge which we have of the social structure of these many diverse communities, of the cultural values to which they are clinging quite tenaciously, some of which at first sight are much in conflict with European valuations at the religious level, at the level of family standards (of polygamy, for example)—we feel that scientific understanding of these various cultures and their social systems is indispensable, not for the anthropologist to become an administrator, but for him to provide knowledge which the administrator, the merchant, the missionary, and the educator can use.

MR. REDFIELD: In much the same way, then, as that in which anthropologists in the United States contribute their understanding to the

makers of policy and to the administrators who have to deal with our Indian problems and, during the last war, with the great problems which arose out of the unhappy removal of the Japanese-Americans for a time. In all such situations, especially where there is an unfamiliar culture or somewhat unfamiliar people, the knowledge of the anthropologist is a special sort of knowledge which helps us to deal more wisely with the practical situation.

MR. FORDE: That is exactly what I was trying to put across.

MR. REDFIELD: I think that you put it across very well. I am sure that our hearers would begin to ask us questions which we would find intensely embarrassing if we could hear them ask, and perhaps at the end of the hour the telephone will ring and we will begin to hear them. But one question which comes to my mind is this: What do anthropologists have to say, if they have anything to say, on the problems of a gradually—indeed, a rapidly—expanding world in which everybody gets to know about the existence of everybody else? To say it in a somewhat exaggerated way, nowadays peoples know about one another, and, while they may be unfriendly or even hostile to one another, they are also increasing attachments and loyalties. The United States of America is a country which has built its unity out of immigrants and has shown that people of very different kinds of beginnings can come to feel that they belong together. That makes Americans a little optimistic sometimes about the possibility of extending that sort of process into large parts of the world; and one begins to dream ultimately of a situation in which our predominant loyalty would be to the human race, with local attachments properly subordinated and enjoyed.

Could the anthropologists say anything on such a question? Is world loyalty a possibility? Could we believe in the human race, so to speak?

MR. KROEBER: There was a strong sentiment of that sort in western Europe in the eighteenth century; then came the French Revolution and the Napoleonic wars and other wars, and it seems to have evaporated for a while, only to pick up again more recently.

MR. REDFIELD: I wonder if that is the only parallel which we have.

MR. KROEBER: If we begin with the primitive tribe, we see people, very few in numbers, who think that their kind are the only good kind and that people outside are very different, or perhaps inferior.

MR. FORDE: Even not human at all.

MR. REDFIELD: Even not human at all. Now what becomes of the situation as we get more complex societies? You know them from Africa, Forde, I am sure.

MR. FORDE: The first axiom, I take it, which we all accept, is that cooperation depends upon the people concerned having some object in common. There must be a third party, human or extra-human, something commonly valued by two or more groups, in order for people to work together. We have seen that in our own lifetime, and we see it, of course, with self-contained primitive peoples who can be in relations of hostility over generations—it goes on forever. They have a mutual headhunting game which the anthropologist cannot date; it goes back as far as the people know, and the degree of mutual destruction is very small. The problem today is, you see, that we must keep mutual rivalries between groups under control, or they will break up the whole machine of modern industrial civilization.

MR. REDFIELD: Is it not also to be added that we know that, if people have a common enemy, they tend to be drawn to one another?

MR. FORDE: That is what I mean.

MR. REDFIELD: We certainly see that today. I am restating your point. We see it today in a situation in which political power is almost polar between two halves of the world.

MR. KROEBER: Would it be possible to sum this point up by saying that the anthropological attitude is that we cannot say with certainty that a world loyalty or loyalty to the world as a whole is possible; but we see no reason why it should be impossible? It is, in other words, entirely within the realm of possibility, but we have no previous experience to go on to allow us to speak with dogmatism.

MR. REDFIELD: I for one will accept that.

MR. FORDE: We might go just a little bit further, I think, and say that, where two groups have got into mutually destructive hostility of a serious scale, there has been something wrong—some pathological condition in the culture and social organization of the groups concerned. In other words, if we can keep the social system healthy in the component societies, they will not become mutually destructive of one another.

MR. REDFIELD: From time to time in this hour we have been using

that word "culture," Forde, which you just uttered once again. I suggest that we return to it, because in it we have one of the important centralizing ideas of our science. I would like to invite Kroeber to begin to talk about it. What I am thinking is: What do we mean by the word "culture" as we use it and the fact of the diversity of cultures? What does it suggest to us in relation to mankind and as to, perhaps, even the future of mankind?

MR. KROEBER: Culture is generally regarded as being the central idea of anthropology—the concept which more anthropological and research activity revolves around probably than any other. Anthropologists are the people who possibly are more culture-conscious than other social scientists; certainly no less.

A culture is the collection of all the customs of a people—all their social habits, to put it in a rough way. In addition to that, however, it is more. Man is, first of all, an animal in his body; he is, in addition to that, a social animal, but there is something quite obviously which men have in their customs—in the fact that they have religion; in the fact that they can speak three languages; and so on—that distinguishes them from all other animals. And one rough way of defining of what culture consists is precisely this part of human activity and human capacity which men have and which animals lack.

MR. REDFIELD: One can also think of cultures, if I may add another emphasis, as separate things. Each society staying by itself is, so to speak, *a* culture, and each of these cultures is, in a sense, like every other. Will you agree to that?

MR. FORDE: And something, of course, to which the people of every group are extremely attached—that is to say, all the psychological machinery in the individual human being is at work giving value to the culture which a person learns; to the patterns of behavior; to the objects which become familiar as symbols of something else from childhood upward. So we have to reckon with the fact that culture, the culture of a people, even though it does change and can change rapidly over time, is at any given moment in time something to which its people are very attached.

MR. KROEBER: Completely agreed. There are a great variety of human cultures which is due to the fact that men live in societies and that each society tends, partly through isolation and for other reasons, to work

out a culture of its own. This great variety is not a thing for us to be disconcerted about, because, after all, it is an index of the fact that there is a certain potential energy in human beings which goes into the establishment—the manufacture, the invention—of their customs, their religions, their languages, their institutions, their codes of law, and so on. This deep pool of energy which underlies is certainly something which contains great possibilities for the future.

MR. REDFIELD: Anthropology, then, is a science; a way of getting understanding of man and his works. I think that we would all agree with that. And, essentially, for the sake of understanding. It does not characteristically tell people what they ought to do. Such applications of its findings as are made toward the solution of practical problems are by the way, and such applications are for the most part accomplished by administrators and other people rather than by the anthropologists themselves.

Anthropology does have a far-reaching and detached view of the human race. It looks at mankind as a part of the great story of the development of life forms through millions of years. It views broadly and comparatively hundreds and hundreds of different cultures, tribal or national, in which mankind has worked out the universal and ever varying problems of existence. It sees man as capable of a very wide range of adjustability; yet it sees him as exhibiting always certain common features. Especially does anthropology bring into emphatic recognition two aspects of man's nature: Man in whatever group always builds around him a world of ideals and of action in which he believes. That to the people of that group makes sense, and to them it is right. Anthropology also recognizes man's creative energy; the customs, institutions, and art of a tribe or a nation bespeak human power and disposition to find always new solutions for problems; always to develop new expressions of his interest, his wishes and his hopes. With his tools, his factories, and his atomic bombs, man makes ever new problems to solve. And ever within his nature wells up the impulse to solve them and at the same time to express the play of his ideas and sentiments in new forms of living.

Selected Excerpts from

THE STUDY OF MAN*

By **RALPH LINTON**

Professor of Anthropology, Columbia University

*

INTRODUCTION

THIS book has been written in a time of confusion and uncertainty. It is still too soon to tell whether the Western World will recover from the self-inflicted wounds of the World War or whether, as seems more probable, partial recovery will only be a signal for a second and presumably successful attempt at suicide. There have been dark ages before, and there is no reason to suppose that they cannot recur. No one can doubt that there is urgent need for action looking to the reorganization of our society and culture on a sounder basis, and many readers may be disappointed to find that I have offered no plan for action or even tried to evaluate the plans now current. However, they should remember that effective planning requires a thorough and comprehensive knowledge of both situations and materials. In the struggle with disease therapeutic measures may have to wait on systematic research into the nature and behavior of the organisms involved. The bacteriologist, working in the quiet of his laboratory, makes as great a contribution in the long run as the doctor working in the hospital ward. In the struggle with current confusion and maladjustment, the work of the reformer must similarly be backed by that of the social scientist. The more objectively this scientist can approach the phenomena with which he deals, the more accurate and, therefore, the more valuable his results will be. Here, as in all other sciences, real understanding calls for an impersonal approach to problems and an open mind. These cannot be achieved so long as the investigator is seeking for evidence to bolster up some pet theory or to provide rationalizations for some plan of reform. It is too easy for even a thoroughly conscientious individual to ignore or minimize the importance of evidence at variance with his preconceived ideas.

* The "Introduction" and the beginning of Chapter I which are included here are reprinted by special permission of the publisher (Ralph Linton, *The Study of Man* [New York: D. Appleton–Century Co., 1936], pp. 3–5 and 7–12).

No science dealing with human beings can ever attain the degree of objectivity possible to the physical and biological sciences. No one can study living people as impersonally as he studies white rats or fossils: he has too much in common with his subjects. There will always be some emotional involvement, and this will be strongest when he is studying the phenomena of his own society and culture. Even the most superficial investigation of current conditions reveals so much that needs to be done that he can hardly avoid formulating plans for doing it and then trying to justify them. Moreover, his very closeness to these phenomena makes it extremely difficult for him to see them in their proper perspective or to appreciate all the factors involved.

Anthropology is commonly defined as the study of man and his works. This definition would include certain of the natural and all the social sciences, but, by a sort of tacit agreement, anthropologists have taken as their primary fields the study of human origins, the classification of human varieties, and investigation of the life of the so-called "primitive" peoples. The study of human origins and varieties has little bearing on our current problems. It might have if human varieties differed markedly in intelligence or ability, but all the evidence which we now have seems to indicate that they do not. The study of "primitive" peoples, on the other hand, may hold the key to the understanding of many of our problems. It is a far cry from a Kaffir *kral* to a modern city, and it is sometimes hard to convince the sociologist or economist that anything learned from the first will help him to understand the second. However, the two have a common denominator, since both depend upon the qualities which pertain to human beings living in organized societies. Until we understand these qualities it is obvious that we cannot really understand the phenomena for which they are responsible.

If anthropology has succeeded in proving any one thing, it is that peoples and races are fundamentally very much the same. If we wish to understand the nature of society and culture in the abstract, any society and any culture will help to throw light on the problem. There are even marked advantages in beginning the study with non-European peoples. The student can approach them with less emotional involvement, and the very differences between their culture and his own serve to throw the details of both into relief. Moreover, these alien groups offer a partial substitute for the laboratory techniques which are of such value to the natural and physical sciences. The social scientist will never be able to study societies or cultures under predetermined test conditions, but he can observe them under a great variety of conditions. He can

deduce the common denominators for society and also for what we vaguely term "human nature" from such observations much more readily than he can deduce them from studies carried on within the frame of a single society. In particular, such comparative studies provide some measure of the degree to which individuals can be shaped by their social environment.

This last is vital to all forms of social planning. The reformer, like any other planner, must take into account the properties of his materials. Before he can hope to change the habits and attitudes of human beings he must know what has been done, and what therefore presumably can be done, with them. It is the ultimate aim of anthropology to discover the limits within which men can be conditioned, and what patterns of social life seem to impose fewest strains upon the individual. The problems must be stated in this negative form, since even our present knowledge shows that the range of possible adaptation in each of these respects is very wide.

Anthropology is one of the youngest of the sciences and has only made a beginning toward the solution of these problems. Its work is still hampered by a lack of adequate techniques and even by some confusion as to its objectives. It is the purpose of the present book to show the results which have already been obtained and to point out certain of the more important questions which still remain unanswered.

HUMAN ORIGINS†

MAN'S origin is still unknown. That the human body was evolved from some lower form of life is no longer doubted by any one who is familiar with the evidence. Structurally man has so much in common with the other mammals, especially those of the primate order, that no other theory seems tenable. That the human mind was similarly evolved from animal mentality is less clearly demonstrable, but there can be no doubt that the human brain and nervous system, its instruments, were so evolved. The problems of the existence and origin of the human soul do not fall within the scope of this book. However, granting the existence of the soul, there is no basic inconsistency between this and a belief in the evolution of man's body. Divine grace was certainly capable of awarding man a soul at any stage in his physical development.

† This selection from Chapter I consists of the opening discussion of the problem of human origins, as discussed by Professor Linton. The chapter continues with a more detailed analysis of evidence and work on this question.

The recently revived conflict between religion and science on the question of evolution seems to be based on misconceptions on both sides. A belief in evolution and in the existence of a Creative Intelligence are in no way incompatible. The study of evolution is merely a study of the mechanics of creation with a recognition of the continuity of the creative process. The evolutionist can determine the steps by which new forms of life have come into being, but he remains ignorant of the *force* responsible for these changes and for their direction. He can prove that life, whose source itself is unknown, has assumed more and more complex forms with the passage of time, but he cannot tell us why it has done so. He cannot even forecast, with any degree of accuracy, what forms evolving life will assume. His researches to date make the existence of a Creative Intelligence more rather than less probable. If religion condemns the study of evolution it must also, in common logic, condemn all other studies of the nature of the world in which we live and all attempts to understand it. The Old Testament statements on the nature of the universe are quite as definite as its statements on the origin of man, both being somewhat vague and conflicting, yet the Church no longer condemns men for believing that the world is round or that it moves about the sun. Neither does it condemn them for studying the behavior of bacteria and using the knowledge thus gained to combat disease or for those studies of materials which have made possible the suspension bridge and skyscraper. It is to be hoped that the enemies of evolutionary studies will sometime realize that there is no conflict between the recorded teachings of Christ, on which they claim to base their creeds and the attempt to understand nature. Christ came to show men how to live in the world, not to tell them what the universe was like. His message is as vital to the inhabitants of a spherical earth as of a flat one, to a race which evolved from some lower form of life as to one created instantaneously from the slime of the earth.

Most readers will already be familiar with the principles of evolution and the proofs that it has taken place. We will only concern ourselves with the place of man in zoölogical classifications, his probable line of descent, and the time at which he appeared on earth. The structure of the human body at once places man as a vertebrate, as a mammal, and lastly as a member of a particular order of mammals, the primates. This order includes not only man but also all the apes and monkeys. Some of these, such as the South American monkeys, are very different from man in their structure, while others, like the anthropoid apes, are very much like him. The important point is that in every element of his

structure man is more like one or another of these sub-human forms than certain of these forms are like each other. By every anatomical test all the primates, from the marmoset to the chimpanzee, are his more or less remote cousins.

Man's closest relatives among the primates are the big tailless apes called anthropoids. There are four genera of these: the chimpanzee, gorilla, orang-utan, and gibbon. Of these the chimpanzee and gorilla are the most manlike. Chimpanzees are now fairly common in zoölogical collections and will be familiar to most readers. No one who has watched them will question their similarity to man, even though he may not be enthusiastic about admitting the resemblance. Actually, this resemblance is even closer than appears on the surface. Their structure parallels that of man bone for bone and organ for organ. Even their brains, although proportionately much smaller in size, are surprisingly manlike. Their senses of sight, hearing, smell, etc., seem to be almost exactly like those of men while their mental processes, in so far as these can be tested, seem to be nearly identical with those of human children three to four years old. The resemblance does not even end here. Recent years have seen the development of extremely delicate tests for distinguishing between the blood of animals of different genera and even species. These tests are unable to distinguish between the blood of an anthropoid and that of a man, although they can distinguish between the blood of either and that of a monkey.

Unless all scientific techniques are at fault, the anthropoids are not only our relatives but our rather close relatives. However, they are not our ancestors. With the possible exception of the gibbon, which seems to be a primitive form, it is unlikely that any of the genera of anthropoids are older than man himself. They are not living fossils but the end products of divergent lines of evolution. While man has specialized and developed along certain lines, the apes have gone on developing along others. Men and apes no doubt have a common ancestor somewhere in the remote past, but this ancestor is long since extinct.

Since fossil evidence for man's ancestry is fragmentary and unsatisfactory, we can only try to deduce the form from which he evolved by studying what he is. Most of the living primates are tree-dwellers, and there can be little doubt that our own ancestors were so at one time. The structure of the human arm and shoulder bears mute witness to a long-lost habit of swinging from branch to branch. So do the flexible human hand and the five toes of the human foot, once a grasping organ. Even the adaptation of our bodies to a vertical posture probably goes

back to the days when our ancestors hung by their arms much more than they stood on their legs. It seems almost certain that, somewhere in our line of ancestry, there was an arboreal form not very different from some of the existing Old World monkeys. He did not swing by his tail, since only the New World monkeys developed that refinement, but we may be sure that he was educated in the higher branches.

There can be little doubt that both man and the anthropoids evolved from the same small tree-dwelling form, but the point at which the developing human line split off from the anthropoid line is still vigorously disputed. Certain writers date the separation from the beginnings of the primate order. The main inspiration for this theory seems to be a desire to place a large and comfortable distance between man and his sub-human relatives. Actually, the structural and especially the blood similarities between man and anthropoids are so close that it is hard to conceive of them as results of independent parallel evolution. It seems much more likely that the human and anthropoid lines have been the same for most of their length. Before we take up the questions of where they separated it will be necessary to inject a little geology.

Geologists divide the past of the earth into eras and then subdivide the eras into periods. Each of the eras is characterized by the dominance of certain forms of life. At the beginning of the last or Cenozoic era mammals came to the fore. They had existed in the preceding era but had been of very minor importance. The Cenozoic era is subdivided into the Eocene, Oligocene, Miocene, Pliocene, Pleistocene, and Recent periods, in the last of which we live. The primate order emerged in the Eocene, and by the beginning of the Oligocene it had already differentiated into several families. A fossil ape from the Lower Oligocene, *Propliopithecus,* has characteristics which suggest that it may be the ancestor of both man and the anthropoids. It was a small, tree-dwelling form. We do not know what was happening to *Propliopithecus'* descendants during the Upper Oligocene and Lower Miocene, but we have an extensive series of fossils from the Middle Miocene. These prove that by this time anthropoids were numerous, in fact much more numerous than they are today, and that they had already developed the large size which is still one of their outstanding characteristics.

All the earliest primates which are known to us and most of the existing species are little animals. The members of the order began as tree-dwellers, and light weight is a distinct advantage in arboreal life. Any adult who has tried to follow a boy to the end of a limb will understand why. However, the ancestral anthropoid-human stock evidently de-

veloped a tendency toward giantism. This evolutionary trend seems to culminate in the modern gorilla, adult males of which genus may weigh 600 pounds. Such huge beasts are quite unsuited to arboreal life. Even an animal of one-third the weight has difficulty in finding branches strong enough to support it. As the members of the ancestral stock grew larger they must have spent more and more of their time on the ground and developed increasing structural adaptations to traveling on the ground. Their legs became longer, with more rigid attachment at the hip joint, and the foot, released from its task of grasping branches, drew together and adapted itself to the new task of supporting the weight of the body. This evolutionary trend can also be observed in the gorilla. The mountain gorilla, which reaches the largest size and is most completely ground-living, has a more manlike foot than any other subhuman primate.

It seems highly probable that the first of our manlike ancestors came down out of the trees because he had gotten too heavy for arboreal life. Changing food habits may have been a contributory factor. Although the remote ancestors of the primates seem to have been insect-eaters, most of the primates are vegetarians. None of them is above sucking eggs or devouring an occasional small bird or lizard, but they live mainly on fruits, young shoots, and other growing things. Man is the only really carnivorous primate, yet his large size makes him poorly adapted to chasing agile prey through the branches. If we assume that his ancestors acquired their taste for meat at a time when they had already grown fairly large and were dividing their time between the trees and the ground, there would have been an extra stimulus to ground living. The hunting there was better for big animals.

The Miocene was evidently a time of great evolutionary activity among the anthropoids, and even the small group of fossils which have survived from this period show a number of starts in the human direction. Although none of the known species seem to be in our direct line of ancestry, certain of them are more human in particular respects than any living anthropoid. Apparently nature was experimenting with the human idea at this period, and there probably were a great number of genera and species which were more apelike than any known humans but more manlike than any existing apes. It seems probable that the split between the anthropoid and hominoid, i.e., human, lines of evolution occurred at this period and that the direct ancestor of man was a large Miocene anthropoid with tendencies toward terrestrial life and a carnivorous diet. . . .

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